

CLAIMS

What is claimed is:

1.

A polymeric surgical clip comprising:

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(a) a first leg member having an inner surface and an opposite outer surface;

(b) a second leg member having an inner surface and an opposite outer surface;

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(c) a resilient hinge joining the first leg member and the second leg member at their proximal ends, the first and second leg members being oriented such that the inner surface of the first leg member is in opposition to the inner surface of the second leg member;

(d) a deflectable hook member terminating the distal end of the first leg member, the hook member being curved toward the second leg member;

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(e) a locking portion terminating the distal end of the second leg member, the locking portion being complementary to the hook member such that when said first and second leg members are moved about the hinge from an open position to a closed position, the hook member deflects about the distal end of the second leg member to lock the clip in the closed position; and

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(f) a suture securing mechanism comprising:

(i) a ridge formed along the inner surface of one of the first and second leg members, the ridge having an eyelet extending therethrough; and

- (ii) a groove formed along the inner surface of the other of the first and second leg members than the one upon which the ridge is formed, the groove being aligned in opposition to the ridge wherein the ridge and groove cooperate when the clip is in the closed position to capture a portion of a suture threaded through the eyelet and to maintain a desired level of tension on the suture.
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2. The polymeric surgical clip of claim 1, wherein the ridge is oriented along a primary axis, the primary axis running generally parallel to the longitudinal axis of the first and second leg members.
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3. The polymeric surgical clip of claim 2, wherein the eyelet extends through the ridge perpendicular to the primary axis and parallel to the inner surfaces of the first and second leg members.
4. The polymeric surgical clip of claim 2, wherein the eyelet extends through the ridge perpendicular to the longitudinal axis of the first and second leg members.
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5. The polymeric surgical clip of claim 1, wherein the ridge is formed along the inner surface of the first leg member and the groove is formed along the inner surface of the second leg member.
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6. The polymeric surgical clip of claim 1, wherein the ridge is formed along the inner surface of the second leg member and the groove is formed along the inner surface of the first leg member.
7. The polymeric surgical clip according to claim 1, wherein the inner surface of the first leg member has a concave radius of curvature

between the hinge and the hook member and the outer surface of the first leg member has a convex radius of curvature, the inner surface of the second leg member has a convex radius of curvature between the hinge and its distal end and the outer surface of the second leg member has a concave radius of curvature between the hinge and its distal end.

8. The polymeric surgical clip according to claim 1, wherein the clip comprises bosses coupled to the first and second leg members for engagement with a suitable clip applicator for applying the clips, the bosses joined in pairs to opposite sides of the first leg member between the hinge and the hook portion, and to opposite sides of the second leg member at the distal end of the second leg member, the second leg member having sharp pointed members extending from the bosses.

9. The polymeric surgical clip according to claim 8, wherein a portion of the pair of bosses joined to the first leg member extend beyond the outer surface of the first leg member to form substantially parallel and spaced apart surfaces which prevent lateral movement of the first and second leg members relative to one another when the clip is in the closed position.

10. A polymeric surgical clip comprising:

(a) a first leg member having an inner surface and an opposite outer surface;

(b) a second leg member having an inner surface and an opposite outer surface;

- (c) a resilient hinge joining the first leg member and the second leg member at their proximal ends, the first and second leg members being oriented such that the inner surface of the first leg member is in opposition to the inner surface of the second leg member;
- 5 (d) a deflectable hook member terminating the distal end of the first leg member, the hook member being curved toward the second leg member;
- (e) a locking portion terminating the distal end of the second leg member, the locking portion being complementary to the hook member such that when said first and second leg members are
10 moved about the hinge from an open position to a closed position, the hook member deflects about the distal end of the second leg member to lock the clip in the closed position; and
- (f) a suture securing mechanism comprising:
 - 15 (i) a ridge formed along the inner surface of one of the first and second leg members, the ridge being oriented along a primary axis, the primary axis running generally parallel to the longitudinal axis of the first and second leg members, the ridge having an eyelet extending through the ridge
20 perpendicular to the primary axis and parallel to the inner surfaces of the first and second leg members; and
 - (ii) a groove formed along the inner surface of the other of the first and second leg members than the one upon which the ridge is formed, the groove being aligned in

opposition to the ridge wherein the ridge and groove cooperate when the clip is in the closed position to capture a portion of a suture threaded through the eyelet and to maintain a desired level of tension on the suture.

- 5 11. The polymeric surgical clip according to claim 10, wherein the inner surface of the first leg member has a concave radius of curvature between the hinge and the hook member and the outer surface of the first leg member has a convex radius of curvature, the inner surface of the second leg member has a convex radius of curvature between the
- 10 hinge and its distal end and the outer surface of the second leg member has a concave radius of curvature between the hinge and its distal end.
12. The polymeric surgical clip according to claim 10, wherein the clip comprises bosses coupled to the first and second leg members for engagement with a suitable clip applier for applying the clips, the bosses
- 15 joined in pairs to opposite sides of the first leg member between the hinge and the hook portion, and to opposite sides of the second leg member at the distal end of the second leg member, the second leg member having sharp pointed members extending from the bosses.
13. The polymeric surgical clip according to claim 12, wherein a portion of
- 20 the pair of bosses joined to the first leg member extend beyond the outer surface of the first leg member to form substantially parallel and spaced apart surfaces which prevent lateral movement of the first and second leg members relative to one another when the clip is in the closed position.

14 A polymeric surgical clip comprising:

- (a) a first leg member having an inner surface and an opposite outer surface;
- 5 (b) a second leg member having an inner surface and an opposite outer surface;
- (c) a resilient hinge joining the first leg member and the second leg member at their proximal ends, the first and second leg members being oriented such that the inner surface of the first leg member is in opposition to the inner surface of the second leg member;
- 10 (d) a deflectable hook member terminating the distal end of the first leg member, the hook member being curved toward the second leg member;
- (e) a locking portion terminating the distal end of the second leg member, the locking portion being complementary to the hook member such that when said first and second leg members are moved about the hinge from an open position to a closed position, the hook member deflects about the distal end of the second leg member to lock the clip in the closed position; and
- 15 (f) a suture securing mechanism comprising:
 - 20 (i) a ridge formed along the inner surface of one of the first and second leg members, the ridge being oriented along a primary axis, the primary axis running generally parallel to the longitudinal axis of the first and second leg members, the ridge having an eyelet extending through the ridge

perpendicular to the longitudinal axis of the first and second leg members; and

5 (ii) a groove formed along the inner surface of the other of the first and second leg members than the one upon which the ridge is formed, the groove being aligned in opposition to the ridge wherein the ridge and groove cooperate when the clip is in the closed position to capture a portion of a suture threaded through the eyelet and to maintain a desired level of
10 tension on the suture.

15. The polymeric surgical clip according to claim 14, wherein the inner surface of the first leg member has a concave radius of curvature between the hinge and the hook member and the outer surface of the first leg member has a convex radius of curvature, the inner surface of
15 the second leg member has a convex radius of curvature between the hinge and its distal end and the outer surface of the second leg member has a concave radius of curvature between the hinge and its distal end.

16. The polymeric surgical clip according to claim 14, wherein the clip comprises bosses coupled to the first and second leg members for engagement with a suitable clip applicator for applying the clips, the bosses
20 joined in pairs to opposite sides of the first leg member between the hinge and the hook portion, and to opposite sides of the second leg member at the distal end of the second leg member, the second leg member having sharp pointed members extending from the bosses.

17. The polymeric surgical clip according to claim 16, wherein a portion of the pair of bosses joined to the first leg member extend beyond the outer surface of the first leg member to form substantially parallel and spaced apart surfaces which prevent lateral movement of the first and second leg members relative to one another when the clip is in the closed position.
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